Developing goal orientations conducive to learning and performance: An intervention study

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Abstract

Goal orientation is an important psychological attribute for employees, as it has been found to predict a wide range of work-related outcomes. While goal orientation has been well studied, little is known about the extent to which individuals' stable, trait-like goal orientation can be changed and about whether some individuals are more likely than others to engage in such intrapersonal change. In this study, we examined an intervention program designed to change individuals' trait-like goal orientation. The results from 132 full-time managers and professionals participating in a part-time MBA course revealed that, on average, participants' performance-avoid orientation was lessened as a result of the intervention, while there was no overall change in learning orientation, perhaps due to ceiling effects. Further, evidence showed individual variation in these changes. Drawing on adult attachment theory, we investigated and showed the critical role of facilitator support and individuals' attachment styles in shaping intrapersonal changes in goal orientation. Facilitator support resulted in fostering greater positive change, particularly for individuals with high levels of anxious attachment. Implications are discussed in terms of advancing theories on personality change and goal orientation, as well as designing interventions to support the development of positive psychological attributes.

Keywords: Goal orientation; learning; personality change; personal development; attachment style

Practitioner points:

- Individuals' trait-level goal orientation can be changed through a purposefully designed intervention program.
- The program helps to significantly reduce participants' performance-avoid orientation while maintaining their learning orientation.
- Greater support from program facilitators means greater change in participants' goal orientation, especially for those with high attachment anxiety.

Developing goal orientations conducive to learning and performance:

An intervention study

Goal orientation, a psychological construct that describes how individuals approach, interpret, and respond to achievement situations, has been found to have significant impact on employees' performance. Notably, a learning goal orientation, the goal orientation that leads employees to focus on developing new skills and mastering new situations (e.g., Dweck, 1986; Elliot, 1999; Farr, Hoffman, & Ringenbach, 1993), has been linked to various positive outcomes, such as better job performance (see Payne, Youngcourt, & Beaubien, 2007; Van Yperen, Blaga, & Postmes, 2014 for meta-analyses) and training outcomes (DeRue & Wellmen, 2009; Bell & Kozlowski, 2002). In contrast, a performance goal orientation leads employees to focus on demonstrating or validating their competence, either through seeking favorable evaluations or through avoiding negative judgments about their competence (e.g., Dweck, 1986; Elliot, 1999; Farr et al., 1993). This goal orientation, especially performance-avoid orientation, has been found less optimal for learning and work performance (Payne et al., 2007; Van Yperen et al., 2014). Moreover, because individuals can hold multiple goal orientations, research suggests that best results are achieved when individuals adopt a high learning orientation and a low performance-avoid orientation simultaneously (e.g., Fortunato & Goldblatt, 2006).

Although goal orientation has usually been conceptualized and operationalized in organizational research as an individual trait-like attribute that is relatively stable (e.g., Button, Mathieu, & Zajac, 1996; Colquitt & Simmering, 1998; Payne et al., 2007), it is potentially malleable. Indeed, research has shown that goal orientations can change during important life-stage transitions (e.g., Anderman & Midgley, 1997; de Lange, Van Yperen, Van der Heijden, & Bal, 2010; Duchesne, Ratelle, & Feng, 2014). This finding is in line with research on personality that indicates that trait-like attributes can be changed by life and work experience (e.g., Mroczek & Spiro, 2007; Roberts, Walton, & Viechtbauer, 2006; Wu & Griffin, 2012).

For organizational researchers, it is therefore of great value to understand how employees' goal orientation can change into a more optimal form in order to bring positive outcomes both for themselves and for the organization. However, research to date focuses mainly on the differential effects of the trait-level learning and performance orientation (see Payne et al., 2007; Van Yperen et al., 2014 for meta-analyses). Although laboratory studies suggest that it is possible to temporarily induce state-level goal orientation (see Van Yperen, Blaga, & Postmes, 2015 for a meta-analysis), there is no research on how to systemically facilitate intrapersonal change in trait-level goal orientation. The aim of this study is thus to understand whether and how we can facilitate such a change.

To design the intervention program, we drew on the personality development framework (Hennecke, Bleidorn, Denissen, & Wood, 2014), which proposes that personality change can be facilitated when individuals perceive such a change as desirable and feasible and when such a change becomes habitual. The program content thus highlighted the value of having a more optimal form of goal orientation (i.e., a high learning orientation and a low performance-avoid orientation) and included exercises to enhance self-efficacy for change, and the program structure provided multiple opportunities to enact new behaviors.

In addition to the content and structure of the program, we expected the relationship between program facilitators and participants to be important for changing goal orientation. Programs involving personal change can be challenging for participants, as they require participants to deviate from how they currently perceive themselves and to believe that change is desirable. Such a personal change requires a sense of security for participants to expand and explore their possible selves (Markus & Nurius, 1986). Drawing on attachment theory (Bowlby, 1969/1982), we explored whether facilitators can establish an environment for self-exploration and whether participants are willing to rely on such support to achieve change. As elaborated

below, we propose that facilitator support and participants' attachment style will interact to shape intrapersonal change in goal orientation.

We conducted the intervention with full-time managers and professionals who were pursuing part-time MBA study. We consider this context appropriate because participants were mid-career adult learners who were open to personal development and would therefore likely respond to a purposefully designed intervention program. We also recognize that the competitive nature of the MBA program and the workplace in general can impose a strong performance orientation (e.g., Griffiths, Winstanley, & Gabriel, 2005; Latham & Brown, 2006); therefore, it is particularly important to mitigate this context by purposefully facilitating individuals' reduction of performance-avoid orientation while growing, or at least maintaining, their learning orientation. In the following sections, we first discuss the literature concerning goal orientation and the possibility to change goal orientation. Next, we describe the intervention program as informed by the personality development framework (Hennecke et al., 2014). Finally, we draw on attachment theory (Bowlby, 1969/1982) to propose the joint effect of facilitator support and participants' attachment style in shaping individuals' change in goal orientation.

Goal orientation as a critical psychological attribute

The concept of goal orientation has been widely studied in various domains. Two main types of goal orientation that individuals adopt in achievement situations are a learning goal orientation (also termed as mastery orientation) and a performance goal orientation (e.g., Dweck, 1986; Elliot, 1999; Farr et al., 1993). Researchers have suggested that a learning goal orientation is more desirable because learning-oriented individuals tend to compare themselves with their past performance and thus adopt an internal referent, whereas performance-oriented individuals compare their performance with others' performance and adopt an external referent (e.g., Nicholls, 1975). Further, learning-oriented individuals tend to believe that intelligence

and performance can be improved through increased effort and practice, while performance-oriented individuals tend to have a fixed mindset in believing intelligence cannot be changed (Dweck, 1986; Elliott & Dweck, 1988). As a result, learning-oriented individuals tend to engage in activities that draw on their intrinsic motivation, which enables them to seek and be energized by challenges and to sustain interest and effort in tasks. In contrast, performance-oriented individuals tend to employ maladaptive strategies as a result of focusing on ability. For example, they need to be certain that their ability to engage in a specific task is high and are likely to avoid challenges and withdraw effort from novel and challenging tasks (Dweck, 1986).

An advance in this literature has been for researchers to make a finer-grained differentiation of the different manifestations of performance goal orientation. VandeWalle (1997) described these orientations as "performance-prove", or individuals' focus on proving their competence, and "performance-avoid", or individuals' focus on avoiding negative judgment of their competence. This conceptualization is in line with other seminal models of motivational orientation, such as the distinction between approach and avoidance (Elliot, 1999). Researchers have found that it is the performance-avoid orientation, rather than the performance-prove orientation, that is dysfunctional. Performance-avoid individuals tend to avoid and withdraw from tasks due to fear of appearing incompetent, which negatively impacts their learning, performance and wellbeing (e.g., Elliot & Harackiewicz, 1994; Pintrich, 2000). The performance-prove orientation is not necessarily maladaptive, as the motivation to outperform others can enable individuals to invest affectively and cognitively in tasks and thus work hard to achieve positive outcomes (Harackiewicz, Barron, & Elliot, 1998).

Since being applied to organizational research, goal orientation has been found to shape various work-related outcomes. In two meta-analyses in which work domain was a focus, learning orientation has a positive impact, while performance-avoid orientation has a negative

impact on learning and performance outcomes (Payne et al., 2007; Van Yperen et al., 2014). Regarding performance-prove orientation, the results are more mixed. Payne et al. (2007) suggested that performance-prove orientation has little impact on learning and task performance, while Van Yperen et al. (2014) revealed its positive association with both learning outcomes and other-rated job performance. Overall, there is strong and consistent evidence for the positive effect of learning orientation and the negative effect of performance-avoid orientation, with somewhat mixed effects of performance-prove orientation.

Research further shows that individuals hold multiple goal orientation dimensions simultaneously and thereby provides insights on what type of goal orientation profile is most ideal. Using the three dimensions of goal orientation, Fortunato and Goldblatt (2006) found that a profile with a high learning orientation, a moderate performance-prove orientation, and a low performance-avoid orientation appears most desirable, as these individuals demonstrate a high locus of control, self-efficacy, and positive affectivity, while having low negative affectivity and less fear of failure. It is noteworthy that such a profile is better than a profile with a moderate to high learning orientation but a high performance-prove and performance-avoid orientation, as such individuals demonstrate a high fear of failure and high negative affectivity despite having high self-efficacy and motivation to learn. This study demonstrates that having only a high learning orientation may not be sufficient, as the best outcomes occur when a low performance-avoid orientation is also present. Overall, previous research from various domains suggests that it is important to facilitate holistic development of goal orientation by improving learning orientation while decreasing performance-avoid orientation.

Changing individuals' trait-level goal orientation

There are two broad perspectives on the malleability of goal orientations. First, most research in organizational psychology has conceptualized and investigated goal orientation as a relatively stable personality trait-like variable. Second, studies on how particular goal

orientations can be induced within an experimental setting (Van Yperen et al., 2015) focus on the short-term change in orientations, with the primary aim being to compare differential effects of distinct goal orientations. In this study, we take the trait-based perspective yet endorse the potential to change trait-like goal orientations, such as through purposefully designed interventions. Our conceptualization is in line with the argument that trait-like variables are relatively stable but are amenable to systematic change over time through factors such as maturation and significant experience.

In the general life domain, there is evidence that individuals' goal orientations can change, especially when they experience important life transitions. For instance, as individuals transit from primary to middle school, their endorsement of learning (mastery) goals tends to decrease (Anderman & Midgley, 1997). Additionally, as employees age, their gradual diminution of physical and mental skills tends to switch their attention to loss prevention, causing them to be more learning (mastery)-avoidant (de Lange et al., 2010). These findings concur with the increasingly prominent line of research that focuses on personality change. Despite early assumptions that personality traits are largely stable in adulthood (Costa & McCrae, 1988), researchers have recognized that people do change their personality throughout adulthood, such as by becoming more confident, agreeable, conscientious, and emotionally stable as they get older (Roberts et al., 2006). In organizational settings, increasing attention has been paid to the change in individual traits through work experience. A series of studies has demonstrated that traits such as locus of control, core self-evaluation, and the big five personality, can change over time as a result of job characteristics and job experiences (Wu, 2016; Wu & Griffin, 2012; Wu, Griffin, & Parker, 2015). Goal orientation is particularly appropriate to investigate in this context because it has previously been conceptualized as a relatively stable trait-like construct (e.g., Button et al., 1996; Colquitt & Simmering, 1998;

Payne et al., 2007). In particular, Button et al. (1996, p. 28) commented that goal orientation is a "somewhat stable individual difference that may be influenced by situational characteristics".

Although the above research highlights the potential for change in relatively stable traits, most studies have focused on natural and slowly emerging change over long timespans, with little information about how to actively facilitate and enable personality development through interventions (Roberts, Luo, Briley, Chow, Su, & Hill, 2017). Given the importance of goal orientation for work-related outcomes, it is important to understand the extent to which a general trait-like goal orientation can be purposefully changed and how such change occurs. To answer this question, we designed a personal development program to foster the development of a more optimal goal orientation profile, that is, to develop learning orientation while reducing performance-avoid orientation. To ensure and enhance the effect of this intervention, we drew on a personality development framework (Hennecke et al., 2014) to incorporate key conditions for evoking intrapersonal change.

Designing a personal development program for growth: A self-regulated personality development perspective

A recent framework developed by Hennecke et al. (2014) suggests how personality change is possible. This framework proposes that individuals play an active role in their personality development through a goal-directed process whereby individuals employ self-regulatory mechanisms to achieve a goal (i.e., changing themselves). To enable this self-regulation process, three preconditions must be fulfilled. First, changing trait-related behaviors must be considered desirable and necessary. Second, the person must consider the change to be feasible. Third, the person needs to frequently enact and practice trait-relevant behaviors over time for the behaviors to become habitual.

The self-regulation framework is useful because it pinpoints key design factors for enabling personality change. It first suggests that individuals need to consider certain traits as

valuable and desirable to take onboard the need to change. Following this logic, we designed the program by educating participants from the outset about the benefits of learning orientation and the detrimental effect of performance-avoid orientation. We present to participants the wealth of research evidence concerning the impact of goal orientation on life and work and provide participants their own goal orientation profiles and discuss their implications. For example, after learning about their goal orientation (gathered via a self-reported survey prior to the program), participants are asked to present reflections on their goal orientation profile to their learning team. We also provide participants with numerous readings on goal orientation and ask them to complete personal reflection diaries during their working days. These efforts are designed to enable participants to appreciate the value of having more desirable goal orientations and to understand the need for change.

Second, the framework suggests that changing certain traits must be considered feasible. To increase participants' subjective expectancy of the feasibility of change, we educate participants about adopting the right mindset – a flexible, growth mindset rather than a fixed mindset (Dweck, 1986). Such a mindset enables them to see goal orientation as malleable and to see that change is possible and that the program is designed to help them achieve this change. To improve participants' self-efficacy, we allocate them to small cohorts (15–20 participants per cohort) and small learning teams (3–4 per team) and facilitate them in forming strong bonds with their learning team, who acted as peer mentors in providing support and advice for them to progress toward their change goals. They are also trained to set development goals that are relevant for their personal growth, rather than focusing merely on job or academic performance. These efforts help participants to believe change to be achievable and feasible.

Third, the framework suggests that trait-relevant behaviors must be enacted over time in order to become habitual. To meet this end, we designed the program to contain multiple sessions spanning three months. Early in the program, participants set a personal development

goal, which they work on over the next three months. Throughout this process, participants are encouraged to adopt a learning rather than a performance perspective and are given practical tips to maintain this focus through constructive self-talk. In the last session, participants are asked to present their overall development to the class and are encouraged to reflect on their goal orientation. This repeated reflection and practice enables participants to integrate the concept over time and to habitually focus on changing their goal orientation.

By incorporating the three elements necessary for personality change (Hennecke et al., 2014), we expect that our program would facilitate an increase in participants' learning orientation whilst decreasing their performance-avoid orientation. We do not expect change in their performance-prove orientation, given that we did not set out to change this goal orientation, which has ambiguous learning and performance outcomes. It is worth noting that because the construct under consideration is goal orientation, one may argue that individuals' initial level of goal orientations has an impact on the degree of intrapersonal change, for instance, those with a high initial learning orientation may be more open to learning and thus change their goal orientation more. However, we argue that the extent of change can be independent of one's initial level of goal orientations because, even if someone starts with a low learning orientation, this person can be persuaded and empowered through the intervention and thus engage in intrapersonal change. Indeed, our intention was to design an intervention that fosters meaningful change by conveying the desirability and possibility of change, which provides a strong situation (Meyer, Dalal, & Hermida, 2010) that can overwrite one's initial goal orientations. Nevertheless, we recognize the importance of controlling for initial-level goal orientations to rule out their potential influence. In sum, we hypothesize:

> *H1: Participants' learning orientation will increase and performance-avoid orientation will decrease as a result of the program, after controlling for their initial level of goal orientation.*

Although the program is designed to create appropriate conditions for intrapersonal change, we also recognize that not all individuals will change in the same way. People do not automatically learn from experience, and even with the same experience, people learn fundamentally different lessons (e.g., Ashford & DeRue, 2012; Heslin & Keating, 2017). We expect that whether effective personal change occurs as a result of the intervention will depend on both the facilitators' and the participants' attributes.

The role of facilitator support and participants' attachment style

We expect that the relationship between program facilitators and participants will be an important element that shapes the supportive context required for personal change. Because participants can establish and experience different relationship qualities with the same facilitators (c.f., Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012), it is essential to look into the characteristics of participants and those of program facilitators to understand the social context that facilitate personal change. We use attachment theory (Bowlby, 1969/1982) to guide our examination of the social context of the program. Attachment theory outlines a relational perspective of child development, which provides broader principles to understand individual development and can thus be applied to the context of personal development programs. Specifically, we draw on this theory to elaborate the importance of facilitator support and participants' attachment style. We first outline the rationale for expecting a positive effect of facilitator support and then discuss why individual differences in attachment style are expected to moderate the effect of facilitator support.

Attachment theory posits that support from significant others is critical for individuals to comfortably learn and explore the world. This theory focused initially on support during childhood. According to Bowlby (1969/1982), a high level of support provided by the primary caregiver is critical, as it enables children to confidently explore novel and challenging environments knowing that there is a secure base to which they can return when dangers and

obstacles occur. The lack of such support can greatly hamper children's learning and exploration. These ideas have since been expanded beyond attachment in childhood to contexts in which individuals have relationships with targets other than parents. For instance, Wu and Parker (2017) showed that supportive leaders at work can function as a secure base for employees to explore alternative approaches to their work.

Based on this theory, we expect that facilitator support will play a positive role in guiding individuals' change in goal orientation. Personality change is a challenging journey because it requires individuals to confront their existing self-concept and explore uncharted territory. In this context, facilitator support is critical for creating a positive and safe learning environment so that participants can feel confident in changing themselves. In essence, we expect that facilitator support provides a secure haven for participants – similar to that originally proposed to be provided by parents – and hence have a positive effect on participants' development of goal orientation.

Attachment theory also suggests that due to their different attachment styles, people vary in their response to, and reliance on, social support to explore. The attachment literature suggests two primary attachment styles: attachment anxiety and attachment avoidance (Brennan, Clark, & Shaver, 1998; Fraley & Shaver, 2000; Mikulincer & Shaver, 2003). High attachment anxiety represents feeling anxious or fearful of social relationships, while low attachment anxiety represents feeling confident and assured of being accepted in social relationships. High attachment avoidance represents the defensive avoidance of social relationships, while low attachment avoidance represents feeling comfortable being in close relationships and depending on others. We expect that people with higher attachment anxiety will be especially responsive to facilitator support in a development program and thus will be most likely to change their goal orientations.

Individuals with higher attachment anxiety want to explore and master the world, but they can appear worried about their own curiosity, fearing that it might jeopardize their relationships, which results in a conflicting approach toward exploration (Mikulincer, 1997). Therefore, when attending a personal development program and presented with a less ideal self-profile, they may have a desire to change themselves, but may be drawn to their own negative attributes, such as being incapable (Mikulincer, 1995), and may feel anxious about whether their change will be accepted by others (Dozier & Lee, 1995). Because individuals with higher attachment anxiety tend to cope with insecurity by searching for warm relationships when learning and exploring their new world (Bowlby, 1988; Shaver & Hazan, 1993), facilitator support in the program can be particularly critical by providing a secure base to help these individuals feel confident and thus comfortably explore their change journey.

On the other hand, individuals higher in attachment avoidance tend to be self-reliant and hold a defensive, positive self-view (Mikulincer & Shaver, 2003), which means that these individuals may be less likely to desire change when attending the program. In addition, whether they will rely on facilitator support to embrace new change is also questionable. Although it has been suggested that supervisor support can help those with higher attachment avoidance to have higher autonomous motivation and thus be proactive at work (Wu & Parker, 2017), studies also found that these people tend to reduce their desire for proximity and closeness with others (Shaver & Mikulincer, 2002) and choose not to trust and depend on others (Brennan et al., 1998; Collins & Read, 1990) because they have learned that requests for attachment often bring negative consequences, such as being rejected or alienated by their caregivers (Cassidy & Kobak, 1988). Therefore, we do not expect participants high in attachment avoidance to have a strong reaction to our program.

In summary, we expect a positive effect of facilitator support on participants' change in goal orientation, particularly in terms of an increase in learning orientation and a decrease

in performance-avoid orientation. Furthermore, we expect an interaction effect between facilitator support and participants' attachment anxiety in predicting change in goal orientation, such that the positive effect of facilitator support will be especially strong for participants with attachment anxiety. We include attachment avoidance for completeness but do not expect a significant interaction effect between facilitator support and attachment avoidance. We hypothesize:

H2: Facilitator support will have a significant main effect in facilitating a change in goal orientation. A higher level of facilitator support will lead to a significant increase in learning orientation and a decrease in performance-avoid orientation.

H3: There will be an interaction effect between facilitator support and attachment anxiety such that the positive effect of facilitator support on the change in learning orientation and performance-avoid orientation will be stronger for individuals with high attachment anxiety.

Method

Sample and data collection procedures

Full-time managers and professionals attending a part-time MBA course in an Australian business school participated in the personal development program. The program was an optional offering in the MBA course. The program runs over three months, with multiple sessions in between to scaffold and reinforce learning. It should be noted that although we developed the program to change goal orientation, goal orientation was not our only focus, as we believe the program should have broader coverage for several reasons. First, an over-emphasis on goal orientation would make the purpose of the intervention too obvious and might sensitize participants to report change on this construct even though change might not actually occur (Orne, 1962). Second, we aim to provide participants with well-rounded development, with goal orientation being a core element. Moreover, a comprehensive personal development

program is more in line with programs that are typically used across organizations and would thus have broader implications for supporting individuals' development than a narrowly designed intervention that is focused solely on changing goal orientation.

Prior to the start of the program, participants completed a pre-survey in which they were asked to report their learning orientation, performance-prove orientation, performance-avoid orientation, and attachment styles. At the end of the last learning session (i.e., three months after the start of the program), participants were asked to report their learning and performance orientation again as part of a wider survey. They were also asked to report on the level of facilitator support they received in the program. To ensure the discriminant validity of our intervention program, we also collected data on constructs that were not targeted in the intervention. In particular, we measured participants' mindfulness both before and after the program. Mindfulness serves as a good construct for comparison purposes, because while there are many interventions and practices targeted at fostering mindfulness (e.g., Kiken, Garland, Bluth, Palsson, & Gaylord, 2015), this focus was not present in our intervention. Furthermore, similar to goal orientation, mindfulness can be conceptualized and measured at both the trait level and the state level, and the trait-level construct can be changed through purposefully designed interventions (Kiken et al., 2015).

The program was offered to part-time MBA candidates each semester, and over three years, a total of 202 participants completed the program. Because completing the survey was voluntary, not all participants completed both pre- and post-surveys. Completed responses were available from 132 participants, representing a 65.34% response rate. The participants had a mean age of 35.35 years old (SD = 6.89), and 57.8% were male.

Measures

All measures described below, unless otherwise indicated, used a response scale of 1–5, with 1 indicating "strongly disagree" and 5 indicating "strongly agree".

Goal orientation. We measured learning orientation, performance-prove orientation and performance-avoid orientation using items from the trait-level goal orientation scale developed by VandeWalle (1997). Four items were used to measure learning orientation (an example item is "I am willing to select a challenging work assignment that I can learn a lot from")[1]; four items were used to measure performance-prove orientation (an example item is "I like to show that I can perform better than my co-workers"); and four items were used to measure performance-avoid orientation (an example item is "I would avoid taking on a new task if there was a chance that I would appear rather incompetent to others"). To ensure we solicited participants' trait-level attributes, we asked participants to think of their general tendency in answering these statements. The Cronbach's alphas for the pre- and post-surveys were .78 and .85 for learning orientation; .81 and .85 for performance-prove orientation; and .84 and .89 for performance-avoid orientation, respectively.

Facilitator support. We measured facilitator support by two items selected from the measure developed by Williams and Deci (1996). The items were "I am able to be open with my facilitator during class" and "My facilitator encouraged me to ask questions". The Cronbach's alpha was 0.87.

Attachment style. We measured participants' attachment anxiety and attachment avoidance using the 10-item attachment style scale developed by Wu (2009), which has been validated in different work settings (e.g., Wu & Parker, 2017; Wu, Parker, & De Jong, 2014). Four items were used to measure attachment anxiety (an example item is "I often worry that others don't like me"). Six items were used to measure attachment avoidance (an example item is "I am nervous when anyone gets too close"). The response scale was 1–7, with 1 indicating "strongly disagree" and 7 indicating "strongly agree". Exploratory factor analysis successfully

[1] *The lowest loaded item from the learning orientation scale was deleted for having a balanced coverage of the three dimensions in terms of item numbers.*

differentiated the two factors, yet also showed that one item for attachment anxiety and one item for attachment avoidance did not load highly on their corresponding factor and were thus deleted to ensure satisfactory internal reliability. The Cronbach's alpha was .78 for attachment anxiety and .73 for attachment avoidance after deleting these two items.

We conducted confirmatory factor analysis to examine the construct validity of the key study variables. The fit of a 9-factor model (i.e., facilitator support, attachment anxiety, attachment avoidance, three goal orientations at Time 1, and three goal orientations at Time 2) was satisfactory (*Chi-square* = 741.61, *df* = 492, $p < .001$, *CFI* = .90, *TLI* = .89, *RMSEA* = .05, *SRMR* = .07) and was significantly better than alternative models, including an 8-factor model in which the two attachment style variables were combined into one factor (*Chi-square* = 893.58, *df* = 500, $p < .001$, *CFI* = .84, *TLI* = .82, *RMSEA* = .06, *SRMR* = .08); and a 6-factor model in which the two time points of goal orientations were aggregated for each of the three factors (*Chi-square* = 1223.18, *df* = 513, $p < .001$, *CFI* = .72, *TLI* = .69, *RMSEA* = .08, *SRMR* = .11). These results confirm that the measurement model is satisfactory for proceeding to hypothesis testing.

Demographic controls and discriminant variable. We controlled for participants' age and gender. As mentioned earlier, we also included mindfulness to demonstrate the discriminant validity of our intervention. Mindfulness was measured by the three highest-loaded items selected from Brown and Ryan's (2003) mindfulness scale. An example item is "It seems I am 'running on automatic' without much awareness of what I'm doing". The Cronbach's alphas for the pre- and post-surveys were .95 and .96, respectively.

Data checking and analytical strategy

Before the main analysis, we first examined if it was necessary to pursue multilevel analysis. Participants were nested within cohorts, and thus, those in the same cohort with the same facilitator might share similar experiences with changing goal orientation. Examining the

variance components shows that between-cohort variances explained between only 0% and 3.55% of the total variance on the key outcome variables, suggesting that it is not necessary to control for the multilevel structure of the data. We also calculated the design effect (i.e., the extent to which cluster sampling influences sampling variability, calculated as 1 + [average cluster size – 1] × ICC1). For all outcomes, the design effect was lower than 2 – the suggested cut-off point for considering the use of multilevel modeling (Heck & Thomas, 2015). We thus treated the data as single level and used hierarchical regression analysis in SPSS to test the hypotheses. We also conducted a supplementary analysis by using a different approach to model change scores. In particular, we used latent differences score modeling (LDSM) following the recommendation by McArdle (2009). This approach creates latent difference scores between variables measured at different time points. Using a different approach to model change could provide a cross-validation of our results.

Results

Table 1 presents the means, standard deviations, and inter-correlations among the study variables. Among the control variables, age had no significant relationships with the outcome variables, while gender had a negative relationship with performance-avoid orientation at Time 2 (r = .21, p < .05), showing that females tend to have higher performance-avoid scores than males after the program. An avoidant attachment style was related negatively to learning orientation (r = -.23, p < .05) and positively related to performance-avoid orientation (r = .24, p < .05) at Time 2, with those higher in attachment avoidance being less learning-oriented and more performance-avoid-oriented after the program. An anxious attachment style was related positively to performance-prove orientation (r = .24, p < .01) and performance-avoid orientation (r = .26, p < .05) at Time 1, with those higher in attachment anxiety being more performance-oriented before the program. The inter-correlations among the three goal orientation outcomes were low to moderate.

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Of the three goal orientations, participants had rather high learning orientations both before and after the program (4.39 and 4.45, respectively). The small increase in learning orientation was not significant based on the paired t-test (t = 1.06, *n.s.*). Participants had generally low performance-avoid orientations both before and after the program (2.32 and 2.16, respectively), and the decrease was significant (t = -2.09, p < .05). Participants' scores on performance-prove orientation were medium both before and after the program (3.41 and 3.29, respectively), and this decrease was not significant (t = 1.73, *n.s.*). Overall, there was a significant reduction in performance-avoid orientation for the entire group, as hypothesized. Unexpectedly, there was no significant increase in learning orientation. One explanation could be that scores at the outset were already high, causing a ceiling effect and making it difficult to demonstrate a change. We also examined the intrapersonal change in mindfulness. As expected, there was no significant change in mindfulness before and after the program (mean = 3.60 and 3.66, respectively, t = -.70, *n.s.*). This result demonstrates good discriminant validity for our intervention, showing that participants did not change in constructs that were not targeted by the intervention. Overall, hypothesis 1 is partially supported.

A lack of group mean change in learning orientation for the entire group does not exclude the possibility that some individuals changed while others did not. We therefore proceeded with the test on the effect of facilitator support and attachment style in predicting intrapersonal change in goal orientation. We performed separate hierarchical regression analyses for learning orientation and performance-avoid orientation. The dependent variable was the goal orientation at Time 2. In Step 1, we entered the control variables, including age, gender, and three goal orientations at Time 1. In Step 2, we entered attachment avoidance,

attachment anxiety and facilitator support. In the final step, we entered the interaction term of attachment anxiety and facilitator support, as well as the interaction term of attachment avoidance and facilitator support. The centered scores on these variables were used to calculate the interaction terms. The results are shown in Table 2.

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Insert Table 2 About Here

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The results of this analysis support hypotheses 2 and 3. First, in Step 2, facilitator support was significant in predicting learning orientation at Time 2 (B = .14, SE = .06, t = 2.43, p < .05) and performance-avoid orientation at Time 2 (B = -.19, SE = .08, t = -2.32, p < .05) after demographic variables, initial goal orientations and attachment styles were considered. This finding shows that higher facilitator support leads to a greater increase in learning orientation, as reflected by the positive coefficient, and a greater decrease in performance-avoid orientation, as reflected by the negative coefficient. Second, in Step 3, the interaction term between facilitator support and anxious attachment was significant in predicting an increase in learning orientation (B = .16, SE = .06, t = 2.80, p < .01) and a decrease in performance-avoid orientation (B = -.22, SE = .09, t = -2.63, p < .01). These interaction effects are plotted in Figures 1 and 2. Simple slope tests suggest that, with respect to a positive change in learning orientation, facilitator support had a significant effect among participants with high attachment anxiety (B = .37, SE = .10, t = 3.74, p < .01) but not among participants with low attachment anxiety (B = .01, SE = .07, t = .10, *n.s.*). With respect to decreasing participants' performance-avoid orientation, facilitator support had a significant effect among participants with high attachment anxiety (B = -.53, SE = .15, t = -3.49, p < .01), but not among participants with low attachment anxiety (B = -.01, SE = .11, t = -.08, *n.s.*). Finally, the interaction term between facilitator support and attachment avoidance was not significant in predicting either outcome

(*B* = -.07, *SE* = .05, *t* = -1.63, *n.s.*, and *B* = .05, *SE* = .07, *t* = .75, *n.s.*, respectively), as we expected[2].

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Insert Figure 1 & 2 About Here

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To cross-validate our results, we conducted a supplementary analysis using the LDSM approach, following the recommendation of McArdle (2009). Using Mplus 7.0, we created latent difference scores between Time 1 and Time 2 for each outcome. We then tested separate path models in which the latent different scores were regressed on our hypothesized variables. The results were largely similar. First, there was a positive effect of facilitator support in predicting the latent difference score on learning orientation (*B* = .19, *SE* = .06, *t* = 3.46, *p* < .01) and performance-avoid orientation (*B* = -.27, *SE* = .08, *t* = -3.22, *p* < .05). Furthermore, the interaction term between facilitator support and attachment anxiety was significant in predicting the latent difference score for learning orientation (*B* = .16, *SE* = .05, *t* = 2.92, *p* < .01) and performance-avoid orientation (*B* = -.22, *SE* = .08, *t* = -2.75, *p* < .01). The interaction term between facilitator support and attachment avoidance was not significant in predicting the latent difference score for learning orientation (*B* = -.07, *SE* = .04, *t* = -1.70, *n.s.*) and performance-avoid orientation (*B* = .05, *SE* = .07, *t* = .78, *n.s.*). The results thus hold using different approaches to modeling change.

Discussion

[2] *To rule out the possibility that individuals with different initial goal orientations might experience different change rates (i.e., initial goal orientation as a moderator of the change effect), we performed a series of supplementary analyses by computing the quadratic terms for each goal orientation dimension and included them in the regression analysis. This quadratic term represents the moderation effect of Time 1 goal orientation on the association between Time 1 goal orientation and Time 2 goal orientation. Our supplementary analysis showed that none of the quadratic terms emerged as significant, and we obtained similar results for all hypothesized effects.*

Can we actively facilitate a change in individuals' trait-level goal orientation so that they benefit more from this important psychological attribute? Furthermore, who is more likely to respond to interventions designed to change goal orientation? Through a carefully designed personal development program and by collecting participants' responses before and after the program, we offer empirical evidence for these theoretically and practically meaningful questions. We first discuss the implications of changing goal orientation through intervention and then discuss the important contextual and individual factors that shape the degree of personal change. Finally, we briefly discuss the implications of our research for understanding personality change.

Given the broadly recognized importance of trait-level goal orientation for a wide range of outcomes (e.g., DeRue & Wellmen, 2009; Bell & Kozlowski., 2002; Payne et al., 2007), it seems imperative for organizations and training professionals to devise efforts to purposefully facilitate employees' development in goal orientation. However, little research is available to understand if this change is possible and how it can occur. Drawing on the personality development framework (Hennecke et al., 2014), we designed and conducted an intervention program with the aim of meeting the three conditions that facilitate personality change: to enable individuals to feel that changing particular traits is desirable or necessary; to enable them to feel that change is feasible; and to provide time and space for them to form new habits associated with the new traits through repeated and deliberate practice. We found that the program indeed facilitated changes in goal orientation, even within a relatively short period. After three months, participants significantly reduced their performance-avoid orientation, and this change was particularly salient among participants with high levels of attachment anxiety who perceived a high level of facilitator support. As we discussed earlier, performance-avoid orientation has a detrimental impact on individuals' learning and performance (Payne et al., 2007; Van Yperen et al., 2014), and can even suppress the positive impact of learning

orientation (Fortunato & Goldblatt, 2006). Our finding provides positive avenues that this negative aspect of goal orientation can indeed be managed and reduced through deliberate training and practice.

We did not observe significant changes in learning orientation for the entire group, which may be because participants already scored relatively high on this measure at the start of the program, thus providing limited scope for further improvement. Given the participants' already high learning orientation, performance-avoid orientation might have been an area that was more susceptible to change, and as a result, participants may have chosen to focus more on this development area and therefore improved significantly. Nevertheless, maintaining high learning orientation can still be considered meaningful, as the competitive context of the MBA program and the workplace in general often imposes strong performance pressure, which can threaten individuals' learning interests (e.g., Griffiths et al., 2005; Latham & Brown, 2006). Furthermore, our results demonstrated that for individuals who had high levels of attachment anxiety and who perceived a high level of facilitator support, learning orientation did increase significantly as a result of the program. Overall, our results provide confidence for changing individuals' trait-level goal orientation through purposefully designed programs.

Moreover, our study demonstrates that the extent of meaningful change in such programs depends on whether individuals perceive themselves to be supported by the facilitator and are sensitive to such support. We found that facilitator support provides a critical role in enabling the increase in learning orientation and the decrease in performance-avoid orientation. We further demonstrated that individuals with high levels of attachment anxiety are more sensitive to the perceived support from the facilitator than those with lower levels, as suggested by the significant two-way interaction between attachment anxiety and facilitator support. Our results suggest that due to the very personal nature of these development programs, it may be particularly important to understand participants' attachment styles and to ensure that those

with attachment anxiety receive adequate support from facilitators; otherwise, these participants may be discouraged by the demands of the program and be less likely to engage in meaningful change. This finding is consistent with earlier findings that highlight the importance of providing a secure base of support to encourage individuals with attachment anxiety in their exploration of new territories (e.g., Wu & Parker, 2017).

In contrast, we did not find that people with different levels of avoidance attachment will respond differently to facilitator support, as suggested by the lack of significant two-way interaction between avoidance attachment and facilitator support. Moreover, there was even some evidence that those with high avoidance attachment may be less likely to change in general, as suggested by the main effect of attachment avoidance on the change in performance-avoid orientation. This finding is not unexpected. Individuals with attachment avoidance have been suggested to adopt a self-defensive strategy such that they use an idealization of the self to defend against potential rejection by others (Mikulincer, 1995). This can lead to a "walling off" style as individuals distance themselves from the need to learn and dismiss the importance of new information (Mikulincer, 1997). Our results suggest that such self-defensiveness may make it particularly difficult to engage these individuals in a personal change journey. Organizations and training professionals may need to pay particular attention when engaging these individuals. For instance, recent studies on romantic relationships have suggested that individuals with an avoidant attachment style can benefit from being facilitated to reflect on positive experiences with their partner and to engage in intimacy-promoting activities (e.g., Stanton, Campbell, & Pink, 2017). This finding suggests that while building and relying on close relationships does not come naturally for these individuals, they can benefit from activities that are purposefully designed to remind them of, and thus feel appreciative of, positive interactions with others, thereby increasing their willingness to rely on support from

others. It would be useful for future research and practice to explore the effect of such strategies in order to assist these individuals in personal development programs.

Finally, our study contributes to the literature on personality change. While in the past, personality was considered a fixed trait that remained stable during one's adulthood (Costa & McCrae, 1988), research over the last decade has increasingly highlighted the changeability of personality throughout adulthood (e.g., Mroczek & Spiro, 2007; Roberts et al., 2006), often as a result of one's life experiences, including work and career experiences (Wu, 2015; Wu & Griffin, 2012; Wu et al., 2015). Nevertheless, these studies focused on naturally occurring changes in individuals' personality. Except for the results of studies in clinical settings, little is known about how personality change can be facilitated through training and interventions (Roberts et al., 2017). Our study is among the first to explore how to actively facilitate such change in a professional context. We suggest that through a purposefully designed personal development program, it is possible to change individuals' personality through training and that effective personality change can occur within as short a period as three months. This finding is in line with Roberts et al.'s (2017) meta-analytical finding on the effect size of intervention duration, which suggests that interventions targeted at personality change can have a substantial effect in the first eight weeks; beyond that duration, longer interventions do not necessarily induce greater personality change. Our results concur with this finding that perhaps personality change requires only between two to three months of dedicated and sustained effort. This finding provides implications for future interventions in the work context regarding how long developmental programs should last to achieve reasonable personality change.

Limitations and future directions

A number of limitations should be noted. First, while we used a pre-post design to evaluate participants' change on focal constructs, a more rigorous design would have included a control group with data from individuals who did not participate in this program. While we

acknowledge the lack of a control group, we believe the program produced meaningful and intended changes because while participants reduced performance-avoid orientation on average, there was no significant change in performance-prove orientation – the goal orientation dimension that we did not expect to change, as well as in mindfulness – the construct that was not targeted in the intervention. This finding therefore provides some validity check for our program effect.

Second, because our post-survey was collected immediately after the program, one may argue that changes in performance-avoid orientation occurred purely because they were called for by the researchers (demand characteristics). However, we believe that this situation is unlikely for two reasons. First, there is no theoretical reason why some (i.e., anxiously attached individuals with high support from facilitators) but not all individuals responded to demand characteristics, whereas we have articulated a theoretical reason for why these individuals were more likely to change their goal orientation. Second, individuals would need to have a highly refined understanding of our hypotheses in order to generate a decrease in performance-avoid orientation but not a change in performance-prove orientation or mindfulness and they would need to detect subtle differences in item content. It is unlikely that they were motivated to, or cognitively able to, generate theorized responses.

Nevertheless, we recognize that a more ideal design would be to follow up with participants beyond the program in order to demonstrate the sustainability of the intervention effect. This step can be achieved by, for instance, following up with participants at a certain time after the completion of the program. However, it should be recognized that the competitive and performance-oriented work context can make such sustainability difficult to achieve. Therefore, future studies may consider purposefully collecting data on situational characteristics in order to understand what context might sustain such an intrapersonal change achieved during intervention programs.

Finally, while the self-regulated personality development framework (Hennecke et al., 2014) offers a valuable theoretical framework for guiding the design of our program, we did not specifically measure participants' perceptions of the three conditions of personality change. Therefore, our study provides only indirect support for the proposed framework. Future studies could consider more directly measuring individuals' perceptions of these conditions to offer a more systematic and in-depth examination of their effect on personality development.

References

Anderman, E. M., & Midgley, C. (1997). Changes in achievement goal orientations, perceived academic competence, and grades across the transition to middle-level schools. *Contemporary Educational Psychology*, 22(3), 269-298. DOI:10.1006/ceps.1996.0926.

Ashford, S. J., DeRue, D. S. (2012). Developing as a leader: The power of mindful engagement. *Organizational Dynamics*, 41(2), 146-154. DOI: 10.1016/j.orgdyn.2012.01.008.

Bell, B. S., & Kozlowski, W. J. (2002). Goal orientation and ability: Interactive effects on self-efficacy, performance, and knowledge. *Journal of Applied Psychology*, 87(3), 497-505. DOI: 10.1037/0021-9010.87.3.497.

Bowlby, J. (1969/1982). *Attachment and loss. Vol. 1: Attachment*. London: Pimlico.

Bowlby, J. (1988). *A secure base*. New York: Basic Books.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46-76). New York: Guilford Press.

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84(4), 822-848. DOI: 10.1037/0022-3514.84.4.822.

Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes*, 67(1), 26-48. DOI: 10.1006/obhd.1996.0063.

Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relation to other defensive processes. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 300-323). Hillsdale, NJ: Erlbaum.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology,* 58(4), 644-663. DOI: 10.1037//0022-3514.58.4.644.

Colquitt, J. A., & Simmering, M. J. (1998). Conscientiousness, goal orientation, and motivation to learn during the learning process: A longitudinal study. *Journal of Applied Psychology,* 83(4), 654-665. DOI: 10.1037/0021-9010.83.4.654.

Costa, P. T., & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology,* 54(5), 853-863. DOI: 10.1037//0022-3514.54.5.853.

De Lange, A. H., Van Yperen, N. W., Van der Heijden, B. I., & Bal, P. M. (2010). Dominant achievement goals of older workers and their relationship with motivation-related outcomes. *Journal of Vocational Behavior*, 77(1), 118-125. DOI:10.1016/j.jvb.2010.02.013.

DeRue, D. S., & Wellman, N. (2009). Developing leaders via experience: the role of developmental challenge, learning orientation, and feedback availability. *Journal of Applied Psychology*, 94(4), 859-875. DOI: 10.1037/a0015317.

Dozier, M. & Lee, S. W. (1995). Discrepancies between self and other-report of psychiatric symptomatology: Effects of dismissing attachment strategies. *Development and Psychopathology*, 7, 217-226. DOI: 10.1017/s095457940000643x.

Duchesne, S., Ratelle, C. F., & Feng, B. (2014). Developmental trajectories of achievement goal orientations during the middle school transition: The contribution of emotional and behavioral dispositions. *The Journal of Early Adolescence*, 34(4), 486-517. DOI: 10.1177/0272431613495447.

Dulebohn, J. H., Bommer, W. H., Liden, R. C., Brouer, R. L., & Ferris, G. R. (2012). A meta-analysis of antecedents and consequences of leader-member exchange: Integrating the past

with an eye toward the future. *Journal of Management*, 38(6), 1715-1759. DOI: 10.1177/0149206311415280.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41(10), 1040-1048. DOI: 10.1037//0003-066x.41.10.1040.

Elliot, A. J. (1999). Approach and avoidance motivation and achievement goals. *Educational Psychologist*, 34(3), 169-189. DOI: 10.4324/9780203888148.ch13.

Elliot, A. J., & Harackiewicz, J. M. (1994). Goal setting, achievement orientation, and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, 66, 968-980. DOI: 10.1037//0022-3514.66.5.968.

Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54(1), 5-12. DOI: 10.1037/0022-3514.54.1.5.

Farr, J. L., Hoffman, D. A., & Ringenbach, K. L. (1993). Goal orientation and action control theory: Implications for industrial and organizational psychology. In C. L. Cooper, & I. T. Robertson (Eds.), *International review of industrial and organizational psychology*. New York: John Wiley.

Fortunato, V. J., & Goldblatt, A. M. (2006). An examination of goal orientation profiles using cluster analysis and their relationships with dispositional characteristics and motivational response patterns. *Journal of Applied Social Psychology*, 36(9), 2150-2183. DOI: 10.1111/j.0021-9029.2006.00099.x.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology*, 4(2), 132-154. DOI: 10.1037//1089-2680.4.2.132.

Griffiths, D. S., Winstanley, D., & Gabriel, Y. (2005). Learning shock: The trauma of return to formal learning. *Management Learning*, 36(3), 275-297. DOI: 10.1177/1350507605055347.

Harackiewicz, J. M., Barron, K. E., & Elliot, A. J. (1998). Rethinking achievement goals: When are they adaptive for college students and why? *Educational Psychologist*, 33(1), 1-21. DOI: 10.1207/s15326985ep3301_1.

Heck, R. H., & Thomas, S. L. (2015). *An introduction to multilevel modeling techniques: MLM and SEM approaches using Mplus (3rd Ed.)*. New York: Routledge.

Hennecke, M., Bleidorn, W., Denissen, J. J. A. & Wood, D. (2014). A three-part framework for self-regulated personality development across adulthood. *European Journal of Personality*, 28, 289-299. DOI: 10.1002/per.1945.

Heslin, P. A., & Keating, L. A. (2017). In learning mode? The role of mindsets in derailing and enabling experiential leadership development. *The Leadership Quarterly*, 28(3), 367-384. DOI: 10.1016/j.leaqua.2016.10.010.

Kiken, L. G., Garland, E. L., Bluth, K., Palsson, O. S., & Gaylord, S. A. (2015). From a state to trait: Trajectories of state mindfulness in meditation during intervention predict changes in trait mindfulness. *Personality and Individual Differences*, 81, 41-46. DOI: 10.1016/j.paid.2014.12.044.

Latham, G. P., & Brown, T. C. (2006). The effect of learning vs. outcome goals on self-Efficacy, satisfaction and performance in an MBA program. *Applied Psychology: An International Review*, 55(4), 606-623. DOI: 10.1111/j.1464-0597.2006.00246.x.

Markus, H. R., & Nurius, P. (1986). Possible selves. *American Psychologist*, 41, 954–969. doi:10.1037/0003-066X.41.9.954.

McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*, 60: 577-605. DOI: 10.1146/annurev.psych.60.110707.163612.

Meyer, R. D., Dalal, R. S., & Hermida, R. (2010). A review and synthesis of situational strength in the organizational sciences. *Journal of Management*, 36(1), 121-140. DOI: 10.1177/0149206309349309.

Mikulincer, M. (1995). Attachment style and the mental representation of the self. *Journal of Personality and Social Psychology*, 69(6), 1203-1215. DOI: 10.1037/0022-3514.69.6.1203.

Mikulincer, M. (1997). Adult attachment style and information processing: Individual differences in curiosity and cognitive closure. *Journal of Personality and Social Psychology*, 72(5), 1217-1230. DOI: 10.1037/0022-3514.72.5.1217.

Mikulincer, M., & Shaver, P. R. (2003). The attachment behavioral system in adulthood: Activation, psychodynamics, and interpersonal processes. *Advances in Experimental Social Psychology*, 35, 53-152. DOI: 10.1016/s0065-2601(03)01002-5.

Mroczek, D. K., & Spiro, A. (2007). Personality change influences mortality in older men. *Psychological Science*, 18(5), 371-376. DOI: 10.1111/j.1467-9280.2007.01907.x.

Nicholls, J. G. (1975). Causal attributions and other achievement related cognitions: Effects of task outcome, attainment value, and sex. *Journal of Personality and Social Psychology*, 31, 379-389. DOI: 10.1037/h0076505.

Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17, 776-783. DOI: 10.1037/1522-3736.5.0035a.

Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology,* 92(1), 128-150. DOI: 10.1037/0021-9010.92.1.128.

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology,* 92(3), 544-555. DOI: 10.1037/0022-0663.92.3.544.

Roberts, B. W., Walton, K., Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132, 1-25. DOI: 10.1037/0033-2909.132.1.1.

Roberts, B. W., Luo, J., Briley, D. A., Chow, P. I., Su, R., & Hill, P. L. (2017). A systematic review of personality trait change through intervention. *Psychological Bulletin,* 143(2), 117-141. DOI: 10.1037/bul0000088.

Shaver, P. R., & Hazan, C. (1993). Adult romantic attachment: Theory and evidence. In D. Perlman & W. Jones (Eds.), *Advances in personal relationships*, Vol. 4 (pp. 29-70). Greenwich, CT: JAI.

Shaver, P. R., & Mikulincer, M. (2002). Attachment-related psychodynamics. *Attachment & Human Development*, 4(2), 133-161. DOI: 10.1080/14616730210154171.

Stanton, S. C. E., Campbell, L., & Pink, J. C. (2017). Benefits of positive relationship experiences for avoidantly attached individuals. *Journal of Personality and Social Psychology,* 113(4), 568-588. DOI: 10.1037/pspi0000098.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. *Journal of Personality and Social Psychology*, 70, 767-779. DOI: 10.1037//0022-3514.70.4.767.

Wu, C.-H. (2009). The relationship between attachment style and self-concept clarity: The mediation effect of self-esteem. *Personality and Individual Differences,* 47, 42-46. DOI: 10.1016/j.paid.2009.01.043.

Wu, C.-H. (2016). Personality change via work: A job demand-control model of Big-five personality changes. *Journal of Vocational Behavior*, 92, 157-167. DOI: 10.1016/j.jvb.2015.12.001.

Wu, C.-H., Griffin, M. A., Parker, S. K. (2015). Developing agency through good work: Longitudinal effects of job autonomy and skill utilization on locus of control. *Journal of Vocational Behavior,* 89, 102-108. DOI: 10.1016/j.jvb.2015.05.004.

Wu, C.-H., & Griffin, M. A. (2012). Longitudinal reciprocal relationships between core self-evaluations and job satisfaction. *Journal of Applied Psychology*, 97, 331-342. DOI: 10.1037/a0025673.

Wu, C.-H., & Parker, S. K. (2017). The role of leader support in facilitating proactive work behavior: A perspective from attachment theory. *Journal of Management*, 43(4), 1025-1049. DOI: 10.1177/0149206314544745.

Wu, C.-H., & Parker, S. K., & De Jong, J. P. (2014). Feedback seeking from peers: A positive strategy for insecurely attached team-workers. *Human Relations,* 67(4), 441-464. DOI: 10.1177/0018726713496124.

VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement,* 57(6), 995-1015. DOI: 10.1177/0013164497057006009.

Van Yperen, N. W., Blaga, M., Postmes, T. (2014). A meta-analysis of self-reported achievement goals and nonself-report performance across three achievement domains (work, sports, and education). *PLoS ONE*, 9(4), e93594. DOI: doi:10.1371/journal.pone.0093594.

Van Yperen, N. W., Blaga, M., & Postmes, T. (2015). A meta-analysis of the impact of situationally induced achievement goals on task performance. *Human Performance,* 28(2), 165-182. DOI: 10.1080/08959285.2015.1006772.

Table 1. Mean, standard deviation and intercorrelations of study variables (N=132).

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1.Age	35.32	6.93												
2.Gender (1=male; 2=female)	1.43	0.50	-.01											
3.Attachment avoidance	3.28	1.06	-.05	.23*										
4.Attachment anxiety	3.00	1.16	-.12	.02	.28**									
5.Facilitator support	4.34	0.73	.03	-.10	-.20*	.07								
6.Learning orientation T1	4.39	0.47	.09	.02	-.09	-.03	.03							
7.Learning orientation T2	4.45	0.49	.07	-.03	-.23*	-.12	.23**	.31**						
8.Performance-prove T1	3.41	0.79	-.03	.12	.04	.24**	.02	.15	.10					
9.Performance-prove T2	3.29	0.81	-.02	-.04	.00	.09	.03	.02	-.02	.46**				
10.Performance-avoid T1	2.32	0.71	.11	.17	.01	.26*	-.02	-.21*	.02	.36**	.32**			
11.Performance-avoid T2	2.16	0.78	.08	.21*	.24*	.13	-.23**	-.20*	-.28**	.21*	.25**	.43**		
12.Mindfulness T1	3.60	1.60	-.02	-.04	-.03	.04	.18*	-.09	.08	-.03	.00	.05	-.11	
13.Mindfulness T2	3.66	1.64	.07	-.11	-.03	.08	.13	.01	.09	-.02	.03	.08	-.08	.78**

Note: 1) ** $p < .01$, * $p < .05$; 2) Response scale was 1-7 for attachment styles, and 1-5 for other variables that used Likert-scales.

Table 2. Hierarchical regression on the change of goal orientations.

	Learning orientation T2			Performance-avoid orientation T2		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Constant	2.75 (.48)**	2.76 (.46)**	2.67 (.45)**	1.53 (.72)*	1.42 (.69)*	1.50 (.68)*
Age	.00 (.01)	.00 (.01)	.00 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Gender	-.05 (.08)	.00 (.08)	.00 (.08)	.24 (.13)	.14 (.13)	.14 (.12)
Learning orientation T1	.34 (.09)**	.32 (.09)**	.33 (.09)**	-.25 (.14)	-.21 (.14)	-.21 (.13)
Performance-prove orientation T1	.01 (.06)	.03 (.06)	.03 (.06)	.09 (.09)	.09 (.08)	.09 (.08)
Performance-avoid orientation T1	.06 (.07)	.08 (.07)	.08 (.07)	.36 (.10)**	.37 (.10)**	.38 (.10)**
Attachment avoidance		-.06 (.04)	-.06 (.04)		.13 (.06)*	.13 (.06)*
Attachment anxiety		-.06 (.04)	-.08 (.04)*		-.01 (.06)	.03 (.06)
Facilitator support		.14 (.06)*	.19 (.06)**		-.19 (.08)*	-.27 (.09)**
Facilitator support * attachment anxiety			.16 (.06)**			-.22 (.09)**
Facilitator support * attachment avoidance			-.07 (.05)			.05 (.07)
F	3.15 (5,126)*	4.27 (3,123)**	4.27 (2,121)*	7.29 (5,126)**	4.03 (3,123)**	3.47 (2,121)*
Model R^2	.11	.20	.25	.22	.29	.33
ΔR^2	.11**	.08*	.05*	.22**	.07**	.04*

Note: 1) ** $p < .01$, * $p < .05$; 2) values are unstandardized parameter estimates for regression weights (standard errors in parenthesis).

Figure 1. The interaction plot of facilitator support * attachment anxiety in predicting learning orientation at T2, after controlling for goal orientations at T1.

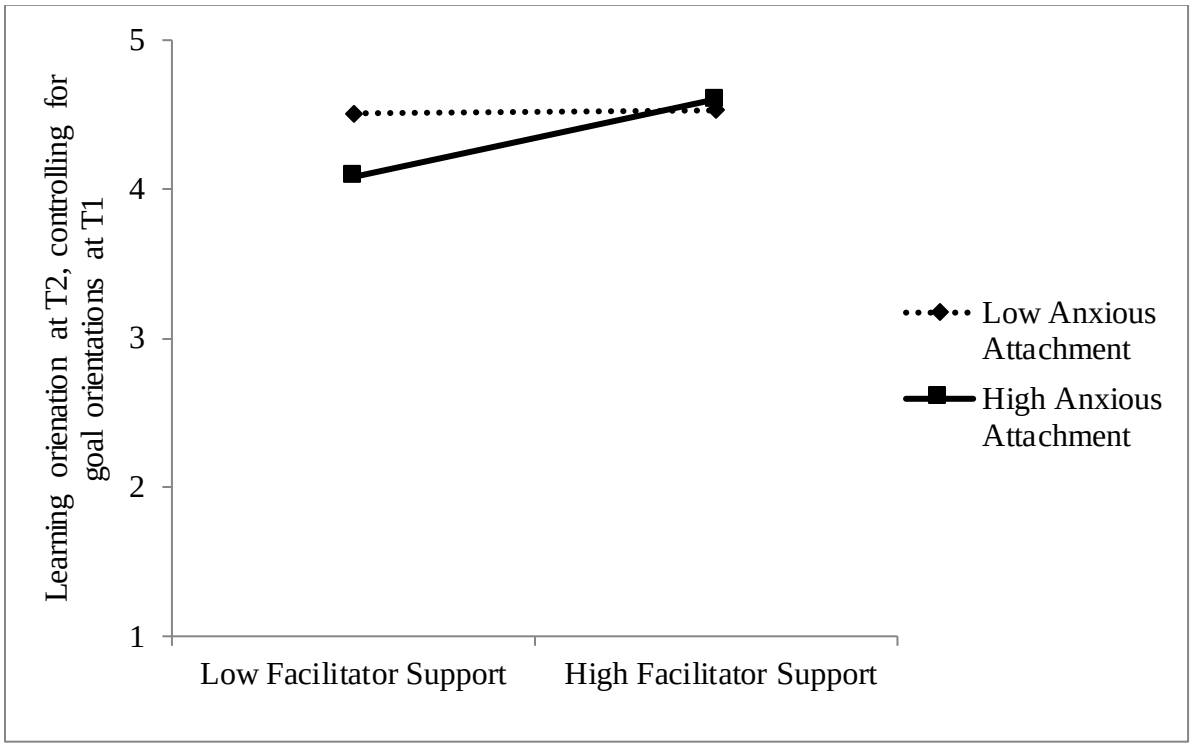

Figure 2. The interaction plot of facilitator support * attachment anxiety in predicting the performance-avoid orientation at T2, after controlling for goal orientations at T1.